# UTAH

## Its Mineral Wealth

*In*
**1923**
**Utah's Mines Produced**
**28% of the Nation's Silver**
**18.1% of the Lead - 16% of the Copper**
**6.35% of the Gold**

ISSUED BY
CHAMBER of COMMERCE
OF SALT LAKE CITY

# Utah's Importance as a Mineral State

*The World's Largest Open Cut Copper Mine is operated at Bingham, Utah.*

*The Largest Silver Mines in the United States are in Utah.*

*The State Ranks First in Silver Production, Second in Copper, Third in Lead, Sixth in Gold.*

*The World's Largest Smelting Center is Located in Salt Lake County. The total value of ore treated in Utah in 1923 was $92,000,000.*

**76 Million Dollars from Utah's Mines in 1923**

Compiled from Authentic Federal and State Sources, 1923 Statistics, and Issued Under the Supervision of the Mining Committee of the

SALT LAKE CITY CHAMBER OF COMMERCE

This Booklet
Designed, Executed and Printed
in Salt Lake City

# Utah's Mineral Wealth

MORE than $1,000,000 a week is being taken from the ground in Utah, where mining is a chief industry. Since 1868 Utah has been one of the nation's leading metal producing states, its output to date having a value of $1,417,631,000, from which dividends of approximately $260,500,000 have been paid by 85 companies operating in 15 separate districts.

The world's biggest open cut copper mine, The Utah Copper, and the nation's largest silver mines are in Utah. Among the states it ranks first in silver production, second in copper production, third in lead production and sixth in the production of gold.

With the development of the mining industry there has grown in Salt Lake valley the world's largest smelting center, where are located four copper and lead smelting plants that have a total annual capacity for the reduction of 4,500,000 tons of ore.

*The industry furnishes 85 per cent of the freight traffic originating in the state and its mines, mills and smelters furnish employment for 18,000 men, totaling a pay roll of approximately $30,000,000 annually.*

The mineral wealth of the state is enormous. Utah has been described by competent engineers as the greatest mineralized area in the world. In addition to the precious and semi-precious metal deposits there are vast stores of known iron and coal deposits, the world's largest alunite deposits, which are rich in potash and aluminum; immeasurable tonnages of oil shales, which government reports estimate contain more than 42,800,000,000 barrels of oil and 500,000,000 tons of ammonium sulphate. The world's largest deposits of the hydro-carbons, the annual production being 30,000 tons; gilsonite, elaterite and ozokerite, immense deposits of natural material from which cement is manufactured, and all classes of building materials, such as clays, gypsum, and building stone, including various colors of marble.

## *Data Found in Government Report*

Importance of Utah as a mining state is indicated by the more than 500 technical publications on its mines, mining camps and geology that have been published by leading scientific writers. Most of these publications have been by the United States Geological Survey, which has issued bulletins on all of the important mining camps of the state, giving the records of the mines and camps, with geological information that points out future possibilities. Complete bibliography of these publications is given in Professional paper 111, a United States Geological Survey publication entitled

*Utah Apex Mine, Bingham, Utah*

"The Ore Deposits of Utah" which is a complete compilation of data on Utah's mining industry.

## *Oil Outlook Gives Promise*

Active drilling operations are going on in several parts of Utah and indications are encouraging that oil will be found in commercial quantities in several districts. At Farnham and Woodside, in Carbon County, drilling is going on by the Utah Oil Refining Company, and geologists assert the outlook is exceptionally good. Both are closed structures. The saturated sands which caused excitement at San Rafael in Utah a few years ago are the sands that are the objective at Woodside and Farnham. San Juan County has oil in small quantities but if the proper structure is found, there will be oil in commercial quantities. The Coalville district in Summit County is a good prospect, the horizon being the same as that which furnishes oil in Southwestern Wyoming.

*More than $2,000,000 have been spent exploring for oil in Utah and if oil is discovered in the anticipated quantity, this state will enjoy a boom.*

## *A Fascinating History*

Mining history in Utah dates back to the early fifties, when lead ore was being mined in Beaver County to supply the "Mormon"

*Deer Trail Mine, Marysvale, Utah*

pioneers. Development of mines was not urged on the Pioneers, however, so that the exploration for metal deposits did not become important until 1862, when Gen. P. E. Connor with a troup of California volunteers established Camp Douglas over-looking Salt Lake City. The mountains surrounding Salt Lake Valley were an inviting prospecting field for those soldiers, many of whom had been lured to California by the gold rush.

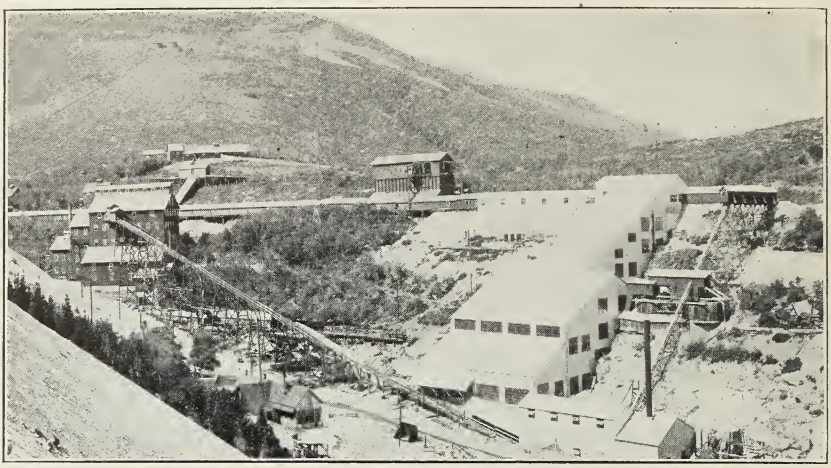
## *Output of Ores and Metals from Utah Mines in 1923*

The mines of Utah made an unusually large output in 1923, according to a statement issued by the Department of the Interior, based on an estimate of V. C. Heikes of the Geological Survey. The value of the gold, silver, copper, lead and zinc was $67,631,000, an increase from $40,424,199 in 1922.

*Utah retained its place as the largest silver producer in the United States, as well as increasing its output of silver. It was third in the production of lead after Missouri and Idaho, and was second only to Arizona in the production of copper.*

## *Gold Production Greatly Increased*

The mine production of gold increased from $2,296,855 in 1922 to about $3,188,860 in 1923. Most of the increase resulted from the smelting of copper concentrate from the Bingham (West



*Silver King Coalition, Park City, Utah*

Mountain) district, as both the Utah Copper and Utah Consolidated were producing regularly. The United States properties and the Utah Apex mine produced much gold from lead ore. No great change was made in the output of gold from the Park City or the Tintic district, though the mines were worked intensively the first five months of the year.

The largest producers of gold were the Utah Copper, Utah Consolidated, United States, Deer Trail, Grand Central, Niagara, Chief Consolidated, Park Utah; Vipont, Tintic Standard, Silver King Coalition, and Utah Apex mines. Practically all the gold came from ore or concentrate smelted, though some ore was treated by cyanidation in Piute County and by roasting and leaching in the Tintic district.

## *Tintic Leads in Silver Output*

The mine output of silver increased from 17,271,000 ounces in 1922 to about 19,500,000 ounces in 1923. The record output of 1922 was exceeded by more than 2,000,000 ounces in 1923, but the value was less, on account of the reduced price of silver. Every possible effort was made from January to May to market ores containing silver before the expiration of the Pittman act, and the increase was general from the large producing districts, but especially large from the Tintic district.

The Tintic Standard Mining Company made an unusual record and had the largest production of silver of any mine in the state, and the Chief Consolidated mine at Eureka, for years the largest silver producer, was only slightly less in output. Other large silver producers follow: Park Utah, Silver King Coalition,

*Tintic Standard Mine, Tintic, Utah*

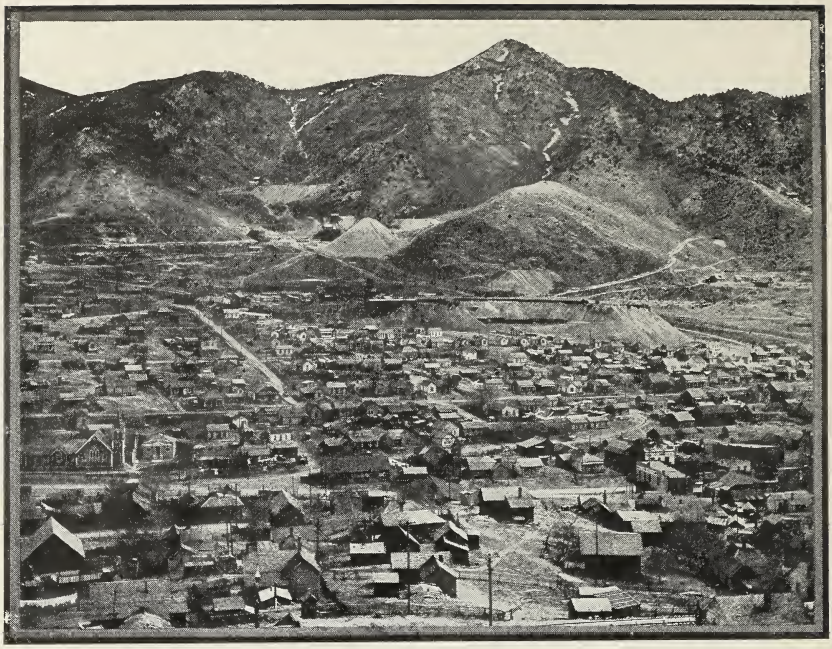
Park City Mining (Judge and Daly West), Vipont, Victoria, Utah Copper, Grand Central, United States, Eagle and Blue Bell, Utah Apex, and Ontario mines, each of which produced more than 300,000 ounces of silver.

Other than siliceous ore treated by roasting and leaching in the Tintic district and some ore from the Deer Trail mine, milled by cyanidation, all the silver resulted from ores smelted. Several of the large producers of silver, such as the Ontario, Vipont and Deer Trail, produced less silver than in 1922, as operations were greatly curtailed the latter half of the year, due to the drop in the price of silver.

## *230,675,000 Pounds of Copper in Year*

The mine production of copper increased from 97,193,850 pounds in 1922 to 230,675,000 pounds in 1923, and the value from $13,121,170 to about $33,217,000. The Utah Copper Company, the largest producer in the state, *more than doubled its output of copper by making an average of more than 16,000,000 pounds a* month. Recovery was greatly increased by the addition of flotation equipment in the mills at Magna and Arthur.

The Utah Consolidated and the Ohio Mines at Bingham were also large producers of copper, the first by flotation at International and the second by leaching copper ore in place. Copper was also produced from mines at Park City, Eureka, Ophir, Alta, and other camps. The copper output of the state was slightly less than the output of 1917, which was 246,000,000 pounds.



*Chief Consolidated Mine, Eureka, Utah*

## *Utah's Lead Production Largest Ever Made*

The mine output of lead increased from 135,332,144 pounds in 1922 to 208,272,000 pounds in 1923, which is *the largest lead output Utah has ever made.* The value increased from $7,443,268 to $15,090,000 and the average price increased from 5.5 cents to about 7.25 cents a pound. The lead-smelting plants at Murray, Midvale and International were operated continuously, and were unusually busy from January to June.

The Tintic Standard Mining Company was the largest producer of lead in Utah, as well as the first silver producer. Other large producers were the Silver King Coalition, Chief Consolidated, Utah Apex, Park City, United States, Victoria, Niagara, and Ophir Hill mines. The output of lead from the Tintic, Park City and Bingham districts was decidedly increased, but the increase from the Tintic district was the largest. Much silver-lead ore and concentrate was shipped from Ophir, Alta, Frisco and Marysvale.

## *Zinc Output More Than Doubled*

The mine output of recoverable zinc increased from 5,119,410 pounds in 1922 to 11,200,000 pounds in 1923, as a result of better market conditions. The Judge mine at Park City was the largest

*Utah Copper Co. Mine at Bingham*

producer and the United States property at Bingham followed. Other shipments came from the Niagara, Chief, Gemini, Hidden Treasure, Horn Silver, Eva, Pittsburg, New York Bingham, and Ute mines. The electrolytic zinc plant at Park City and the zinc oxide plant near Murray were idle.

## *Utah Mine Production 12,673,000 Tons*

*In 1923 the mines in Utah produced about 12,673,000 tons of ore, an increase from 5,560,034 tons in 1922.* Of this total the Bingham district produced 11,879,000 tons, as compared with 4,745,810 tons in 1922. The estimated production of the district was 102,700 ounces of gold, 2,124,000 ounces of silver, 217,832,000 pounds of copper, 50.850,000 pounds of lead and more than 3,500,000 pounds of zinc.

## *Tintic Metal Production Large*

The mines of the Tintic district produced 368,000 tons of ore, as compared with 365,712 tons in 1922. The estimated production of the district was 23,167 ounces of gold, 9,230,000 ounces of silver, 2,675,000 pounds of copper, 78,436,000 pounds of lead and more than 3,500,000 pounds of zinc.

The Tintic district produced nearly as much silver as the state of Nevada. The mines that produced more than 5,000 tons

*Judge Mining and Smelting Co., Park City*

of ore during the year were the Tintic Standard, Chief Consolidated, Victoria, Eagle & Blue Bell, Grand Central, Iron Blossom, Colorado and Gemini.

### *Park City's Splendid Exhibit*

The shipments of ore and concentrate from the Park City region increased from 130,886 tons in 1922 to 164,300 tons in 1923. The estimated output of the district was 9,190 ounces of gold, 5,779,000 ounces of silver, 1,960,000 pounds of copper, 51,255,000 pounds of lead and more than 7,000,000 pounds of zinc.

### *Alta Ore Zone Production Heavy*

Mines in the Alta ore zone, consisting of Big and Little Cottonwood and American Fork mining districts, produced approximately 17,000 tons of ore, 132 ounces of gold, 366,000 ounces of silver, 440,000 pounds of copper, and 6,860,000 pounds of lead. The large producers were the Cardiff, Columbus Rexall, Michigan Utah, Emma, Alta Merger and Wasatch mines.

### *Ophir and Stockton*

From Ophir and Stockton shipments of lead ore and concentrate, about 23,000 tons, were made from Ophir Hill, Keystone (Galena King), Hidden Treasure and Bullion Coalition mines.

*Alta Merger Mines Co., Alta, Utah*

The Vipont, Horn Silver, and Western Utah were large shippers in other parts of the state.

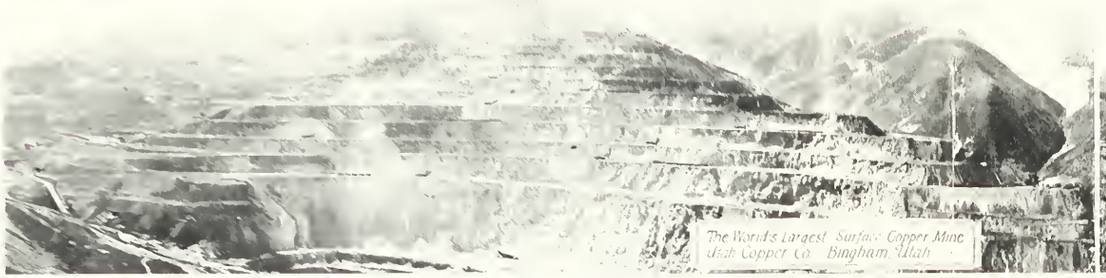
## *Dividends Show Large Increase*

*The published dividends paid by mining companies in Utah in 1923 will amount to more than $10,000,000, exclusive of $1,702,224 paid by the United States Smelting, Refining and Mining Company, which controls mines at Eureka and Bingham as well as mines in other states.* The following companies contributed: Utah Copper, Silver King Coalition, Tintic Standard, Park Utah, Park City Mining & Smelting, Utah Apex, Chief Consolidated, Cardiff, Dragon Consolidated, Iron Blossom, Columbus Rexall, and Silver Wave.

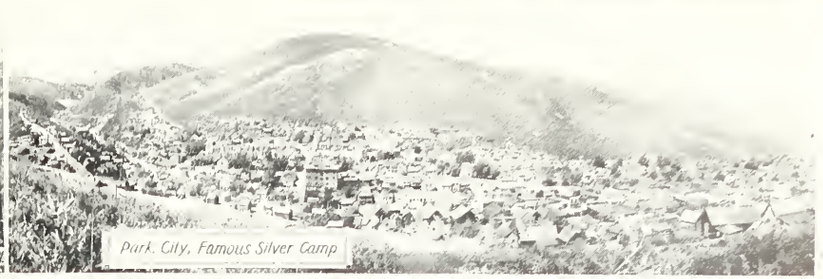
## *Arsenic in Utah*

*During the year 1923 the State came to the front as an important arsenic producer.* Large quantities of high grade arsenic for insecticide purposes were manufactured by the various smelters in the vicinity.

The large deposits of scoradite (arsenical) ores from the Gold Hill District in Tooele County were treated at a plant near Salt Lake City, producing a high grade calcium arsenate. This material was all shipped to the southern states as an insecticide for use in the destruction of the boll weevil. At the present production Utah ranks as one of the foremost states in arsenic production.



The World's Largest Surface Copper Mine
Utah Copper Co. Bingham, Utah



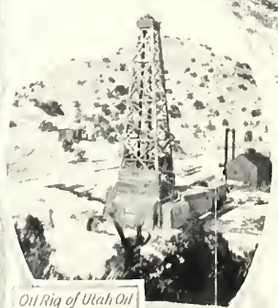
Park City, Famous Silver Camp

Magna Mill

Garfield Smelting Co. Plant, Garfield

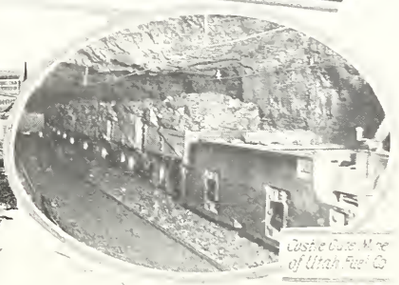
International Smelter
Tooele, Utah

Plant of Columbia Steel Corporation, Near Provo, Utah



Oil Rig of Utah Oil
Refining Co., Near
Price, Utah.

Arthur Mill



Castle Gate Mine
of Utah Fuel Co.

United States Smelter at Midvale

*Castle Gate, Coal Mining Center*

## *Facts About Utah's Coal Resources*

*Utah has more coal in one county (Carbon) than there ever was in the Ruhr basin in Germany.*

*The known areas of workable coal aggregate 13,130 square miles.*

*Geologists of the United States Geological Survey estimate available coal deposits of Utah to contain 196,458,000,000 short tons—or more than 1,964 tons for every man, woman and child in the United States.*

*Coal mining in Utah began about 1870. The production up to January 1, 1923, has amounted to 73,002,805 tons, valued at $147,654,184.*

*Utah coal would last the entire United States 250 years on the basis of present consumption.*

*Utah coal mines regularly employ about 4,500 men with an annual payroll of over $8,000,000.*

*Coal shipped out of the state each year brings back about $8,000,000.*

*Utah has the largest beehive coking plant (819 ovens) in the United States. The coke is of excellent quality and is used in the smelting industry by most all the smelters in the West.*

## *Utah the Coming Steel State of the West*

Utah has for many years been recognized as probably the only state west of the Missouri River with resources from which a great steel industry might be developed. Some forty years ago a small blast furnace was built at Iron City, about 35 miles southwest of Cedar City, Utah. A high grade magnetite ore was used from the Duncan Claim in the Pinto Iron District. Although pig iron was produced, it was not of a suitable grade for steel making processes of that time and the plant was later abandoned.

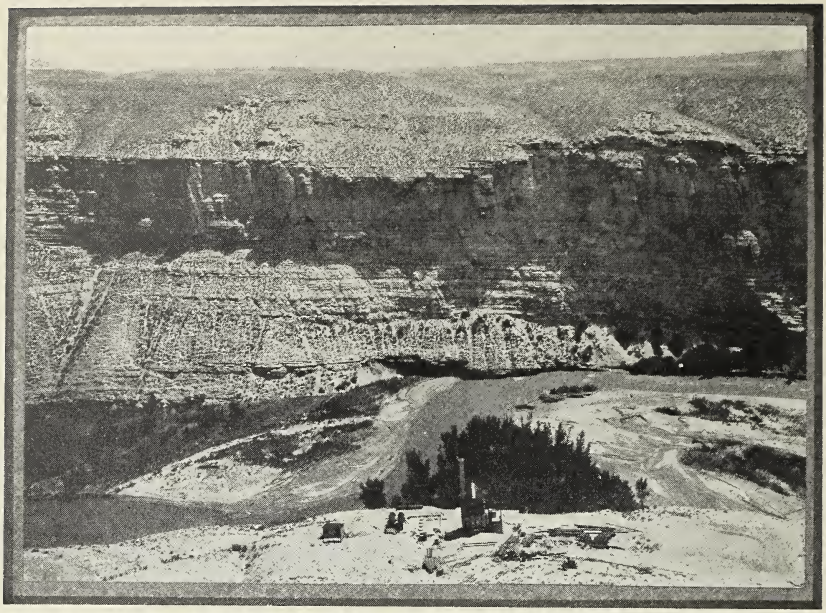
It has remained for the Great War and subsequent shortage of steel scrap, upon which in the past steel mills of the West Coast have been dependent, to bring to fruition these dormant possibilities.

There has been constructed during the past year at Ironton, Utah, a blast furnace of 450 tons daily capacity, also 33 by-product coke ovens with a daily capacity of 650 tons. These coke ovens and blast furnaces are now operating. In conjunction with these there are now operating at full capacity iron mines, located in Iron County and coal mines in Carbon County, Utah. These holdings approximate 20,000,000 tons of hematite iron ore assaying 57 to 58 per cent iron content and 80,000,000 tons of high grade coking coal containing 34 to 38 per cent volatile matter with 55 per cent fixed carbon and yielding 64 per cent coke.

*This project has been entirely financed on the Pacific Coast. The State of Utah has in Iron County alone deposits of 480,000,000 tons of measurable iron ore suitable for iron and steel manufacture, principally red and brown hematite. The total for the State is unknown. The known coking coal of Utah will approximate 180,000,000 tons. Manganese ore, which is of importance in steel making, is also found throughout Utah in goodly quantities. Limestone, the other important commodity in the steel industry is found in unlimited quantities.*

With future development of these wonderful resources, Utah has every reason to look forward with confidence. Industrially Utah should take front rank among the western states. Great manufacturing plants will without question follow the source of supply now available.

The long haul and heavy freights existent from Eastern states have in the past been insurmountable barriers in the proper growth of western industry. Mining alone has paid heavy tribute, and only for the richness and accessibility of its ores has this industry in Utah been able to live and prosper. South America and the Orient are potential customers who will follow with interest the progress now being made in converting Utah's iron deposits into pig iron or finished products which they can consume.



*Oil Shale Reef, White River, Uinta County*

## *Uintah Basin Rich in Hydro-Carbons*

The Uintah Basin section of Utah is very rich in mineral resources and potential mineral wealth. More than 500 cars of copper ore, averaging better than 50 per cent copper content, was shipped from the old Dyer mine near Vernal and the property to this day has not been thoroughly and properly prospected to find the source of this rich copper deposit.

Placer gold is being recovered from the sand deposits of the Green River. Large iron and coal deposits lie untouched and undeveloped. One of the largest deposits of bentonite known lies near the proposed route of the Utah-Colorado railroad, which will also tap the great oil shale beds of the Basin.

*In hydro-carbons the Uintah Basin leads the world.* It is estimated that the known gilsonite will reach 150,000,000 tons. During 1923, 35,000 tons of this product was shipped to market, the bulk of it going to St. Louis.

It is estimated there are 100,000 tons of elaterite known, 1,000 tons of this being shipped during 1923.

## *High Grade Sand*

Utah's sand is in very great demand, particularly for glass making by factories on the Pacific Coast. The sand appears to be of exceptionally good grade, and some deposits contain substances which make it especially adaptable for cleanser products.

*Wendover Salt Beds* *Inland Salt Ponds Near Great Salt Lake*

## *Much Salt in Utah*

With the exception of red rock salt, a limited quantity of which is mined in southern Utah and used on the ranges for stock feeding, all salt produced in Utah is obtained by solar evaporation from the brines of the Great Salt Lake and at Salduro, Utah. More salt is produced annually than is sold, although the total amount produced is not always harvested.

Utah Salt Producers are: Inland Crystal Salt Company, plant located at Saltair, Utah, fourteen miles west of Salt Lake City, on the shores of the Great Salt Lake, capacity approximately 150 tons per day; Morton Salt Company, plant at Burmester, Utah, thirty miles west of Salt Lake City, on southern shore of Great Salt Lake, capacity approximately 90 tons per day; Capell Salt Company, plant at Salduro, Utah, 115 miles west of Salt Lake City, capacity approximately 90 tons per day.

In the territory served by Utah salt manufacturers, which includes Utah, Idaho, Montana, Wyoming, Nevada, California, Oregon, Washington, the average distribution is about as follows:

Utah and Idaho territory, 55.4 per cent; Montana and Wyoming territory, 16.2 per cent; Nevada, California, Oregon, Washington and Pan-Handle of Idaho, 28.4 per cent.

## *Helium in Utah*

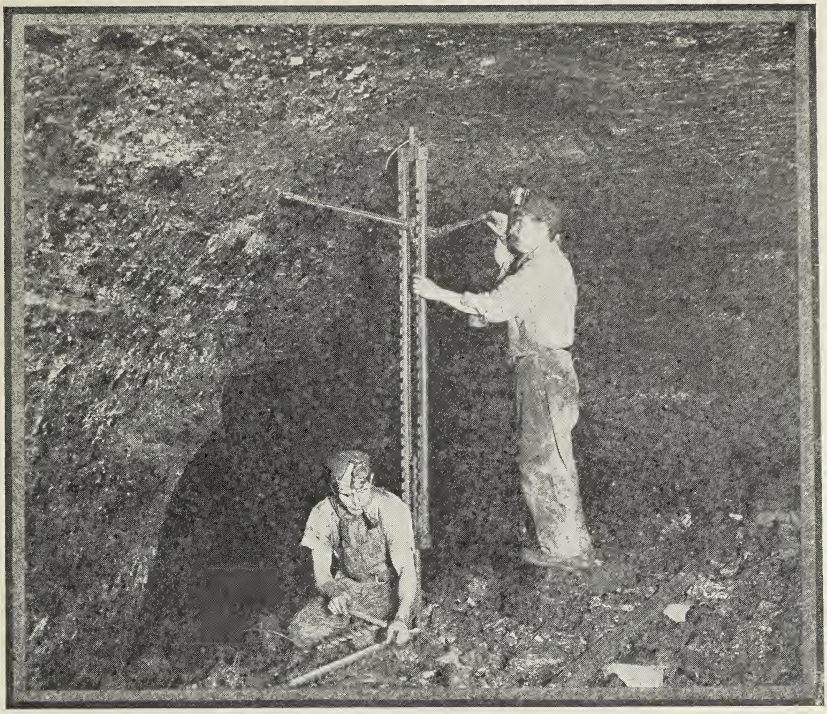
Utah is one of the very few states which can claim the distinction of possessing natural gas which contains what is considered a very high percentage of helium. The only states, other than Utah, containing helium-bearing gases are Texas, Oaklahoma, Ohio, southern Illinois, Pennsylvania, West Virginia, Kentucky and Indiana. The natural gas in none of these states shows as high a helium content as that which has just been discovered in a well recently drilled near Price, Emery County, Utah. This well struck a

*Union Portland Cement Plant in Weber Canyon*

flow of non-combustible gas at a depth of about 3,120 feet, which had a rock pressure of about 750 pounds per square inch and an estimated volume of from three to five millions cubic feet per 24 hours.

The only plants which have been installed for the extraction of helium from natural gas, were constructed by the government at Ft. Worth, Texas, for the purpose of taking helium from gas produced from what is known as the Petrola Field, about 120 miles from Ft. Worth. Nothing has been done in the way of extracting helium from gas produced in the other states mentioned, as the helium content is rather small. When these plants were first operated during the year 1918 or 1919, they extracted from the natural gas from Petrola Field about .96 per cent of helium, but the helium content has since decreased to about .56 per cent. An analysis recently made by Dr. H. P. Cady of the University of Kansas, of the gas from the Woodside well in Utah, shows helium content about 1.35 per cent, or almost 2½ times as great a percentage of helium as the gas from Texas.

At the present time the only commercial use for helium is the inflation of balloons and the government is practically the only user. The balloons now in government service require only from about 18 to 20 million cubic feet of gas and after they are once filled, it would only be a matter of replacing the loss sustained, which would be only about 50 per cent a year. If other sources of helium supply can be found, there is no question that other commercial uses will be found and it may be that many private concerns will go into manufacturing dirigibles for commercial use.



*Electrically Drilling Hole for Shot in Coal Mine*

## *Hydro-Electric Power in Utah*

Hydro-electric power plays a very important part in the mining industry in the state of Utah. Nearly all of the producing operating mines in the state use hydro-electric power for carrying on the drilling, pumping, haulage and other mining operations, and all ore concentrating is done by electric power. Power distributing companies consequently have power lines extending over known mining territory in practically all parts of the state, thus enabling the prospect mines to secure electricity for carrying on development work at the minimum of expense. In fact in many instances the development work could not proceed if it were not for the availability of a reliable source of hydro-electric power.

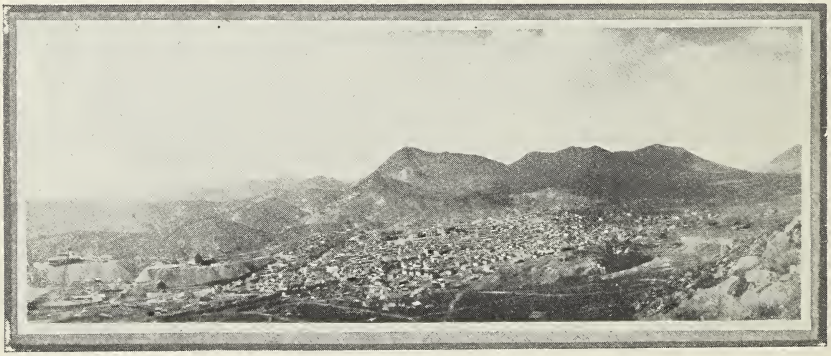
There is used in the state of Utah approximately 150,000 kilowatts in the mining industry, of which amount about 9,200 kilowatts is used in coal mining and the remainder in metal mining.

Electricity used in mining in the state of Utah at the present time approaches 1,500,000 kilowatt hours per day. This translated into conservation of coal resources means that if this power were generated by steam by the individual mines the coal consumption equivalent to nearly one-half the coal output of the state of Utah in 1923.

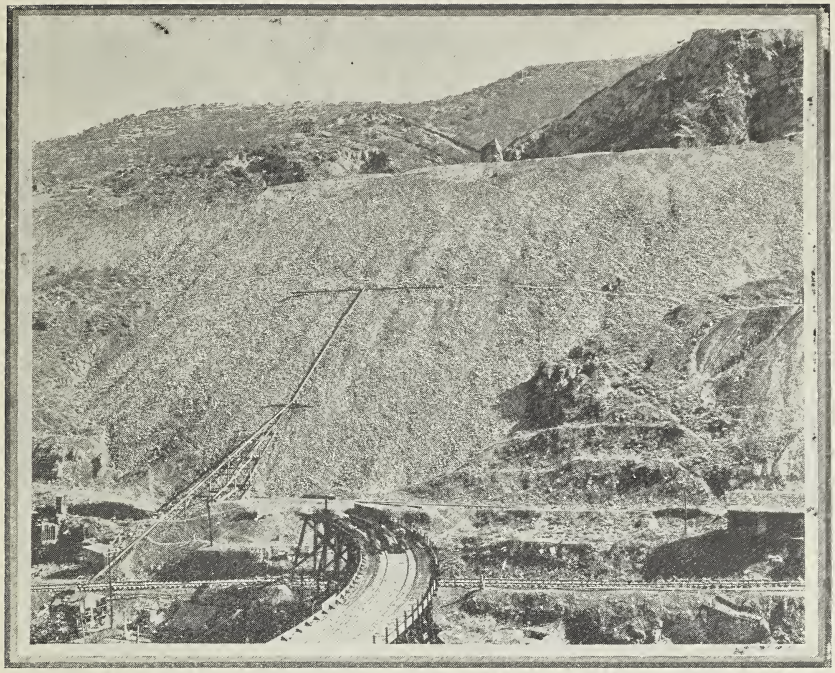
*Nephi Plaster Mill, Juab County*

The greatest single undeveloped power resource in the state of Utah is on the Green River, which is a tributary of the Colorado. From Green River, Wyoming to Green River, Utah, the Green River has a fall of approximately 2,000 feet, 90 per cent of which is probably subject to hydro-electric power development. With proper control and development of the flow of the river, in excess of 500,000 horse-power can be developed.

The rate charged for electric service in the state of Utah is approximately 62 per cent of the average charged in the United States; approximately 85 per cent of the average for the Pacific and mountain states, and approximately 47 per cent of the New England states, where electric service is the highest.



*General View of Eureka*



*Ohio Copper Co., Bingham, Utah*

# Comparative Metal Production 1923

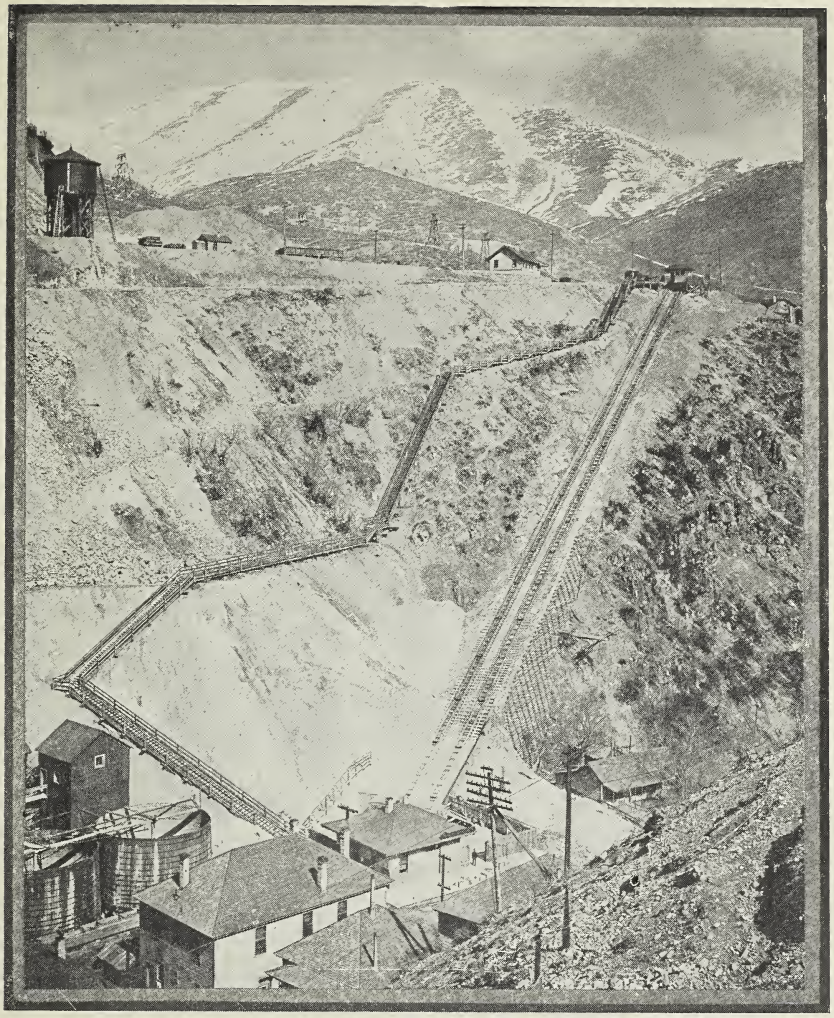
| | | | | |
|---|---|---|---|---|
| GOLD: | | | | |
| U. S. production | 2,485,445 | ounces | | |
| Utah production | 157,567 | ounces | = | 6.35% |
| SILVER: | | | | |
| U. S. production | 72,611,200 | ounces | | |
| Utah production | 20,275,700 | ounces | = | 28 % |
| COPPER: | | | | |
| U. S. production | 1,435,000,000 | lbs. | | |
| Utah production | 230,675,000 | lbs. | = | 16 % |
| LEAD: | | | | |
| U. S production | 1,100,000,000 | lbs. | | |
| Utah production | 208,272,000 | lbs. | = | 18.1 % |
| ZINC: | | | | |
| U. S. production | 970,000,000 | lbs. | | |
| Utah production | 11,200,000 | lbs. | = | 2 % |

Figures Compiled from: Refinery production; Director of the Mint; U. S. Geological Survey.

# Metals Produced in Utah from 1864 to 1923

(By Periods)

| Period | Gold Value | Silver Fine Ounces | Copper Pounds | Lead Pounds | Zinc (recoverable) | Total Value |
|---|---|---|---|---|---|---|
| 1865-1880 | $ 3,118,096 | 33,873,227 | 3,754,194 | 350,713,000 | ..... | $ 64,155,452 |
| 1881-1890 | 2,677,184 | 56,137,249 | 11,830,773 | 556,316,000 | ..... | 87,101,029 |
| 1891-1900 | 17,739,206 | 75,346,301 | 47,349,628 | 743,792,000 | ..... | 106,606,912 |
| 1901-1910 | 43,252,210 | 111,068,934 | 624,858,979 | 1,130,541,875 | 47,051,438 | 252,820,473 |
| 1911-1920 | 33,445,834 | 127,807,350 | 1,740,531,514 | 1,625,912,670 | 144,921,666 | 586,432,730 |
| 1921 | 1,769,905 | 12,251,998 | 30,891,403 | 89,187,269 | 35 | 22,023,790 |
| 1922 | 2,201,500 | 16,800,000 | 95,500,000 | 134,000,000 | 2,560 | 39,738,000 |
| 1923 | 3,188,860 | 19,500,000 | 230,675,000 | 208,272,000 | 11,200,000 | 67,631,000 |
| Grand Total | $107,402,795 | 452,785,059 | 2,787,391,491 | 4,838,734,814 | 203,175,699 | $1,226,509,386 |



*D. & R. G. W. Terminus at Bingham, Showing Tram, Depot and Stairway*

## *State School of Mines, University of Utah*

The University of Utah, situated on the East Bench of Salt Lake City and overlooking both the city and Great Salt Lake in the distance, is said to have the second finest university site in the world. The State School of Mines, a department of the University, is in the heart of one of the greatest mining regions of the United States. The mining districts of Tintic, Park City and Bingham, with its largest copper mine in the country—The Utah Copper Company—are within a few hours ride of the University. In addition to the mills at several of the mines, the smelters at Tooele,

Garfield, Murray and Midvale are close at hand. The new blast furnace plant of the Columbia Steel Company at Provo is another industry of much interest to mining students. Billions of tons of excellent bituminous coal are to be found in Utah, and coal mining will be a very large industry before long. Morever, Utah is the geographical center of mining in the Western States. It is a comparatively short journey to the mines of Butte, Montana, of California, Nevada, Arizona and Colorado. The United States Bureau of Mines has a station at the University, and through a co-operative agreement both institutions support the Metallurgical Research Department of the University of Utah, in which a number of graduate students work through the year for advanced degrees. The School of Mines offers four year courses in both metal and coal mining. Especial attention is given to a study of mining as illustrated in the various districts of the State.

## *Conclusion*

*We present this booklet to give the reader some conception of the vastness of Utah's treasure house of mineral wealth, and her natural resources.*

*The keys of capital and intelligent effort will unlock the doors and make these blessings available to all who will be convinced.*

*Our state invites the investor, the laborer, and the homeseeker, and assures to all a whole-hearted welcome, fair treatment and prosperity in full proportion to the honest, intelligent effort expended.*

**For added information, details or advice, address Mining Committee, Chamber of Commerce, Salt Lake City, Utah**